IN THE CLAIMS:

1. (CURRENTLY AMENDED) A switch for a computer network, the switch to receive ATM cells from the computer network, comprising:

a switching fabric configured to receive a cell at an input port, said switching fabric selecting a route there-through for said cell to an output port;

at least one queue within said switching fabric, said queue having an associated threshold, said switching fabric configured to determine the number of cells present in said queue, said switching fabric further configured to determine if the next arriving cell for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said cell to a "set" state; and

a traffic manager configured to compute a ratio of cells having said flag bit set to a total number of cells received at an output port, and in response to a value of said ratio, either discard said cell or forward said cell onto an output link of said computer network, said traffic manager configured to select a cell to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

2. (ORIGINAL) The switch of claim 1 further comprising:

an ASIC chip having said traffic manager implemented therein.

3. (ORIGINAL) The switch of claim 1 wherein said flag bit further comprises:

an EFCI bit of said ATM cell.

4. (ORIGINAL) The switch of claim 1 further comprising:

a switch fabric card, said switch fabric card having switching fabric chips and said traffic manager mounted thereon.

5. (PREVIOUSLY PRESENTED) The switch of claim 1 further comprising:

an IP linecard, said IP linecard configured to receive TCP/IP computer packets from a computer network and forward ATM cells to said switching fabric.

6. (PREVIOUSLY PRESENTED) The switch of claim 1 further comprising:

an IP linecard, said IP linecard configured to receive ATM cells from said switching fabric and forward TCP/IP computer packets onto a computer network.

7. (CURRENTLY AMENDED) A switch for a computer network, the switch to receive IP packets from the computer network, comprising:

a line card to convert said IP packets to fixed length segments;

a switching fabric configured to receive said fixed length segments from said line card at an input port, said switching fabric configured to select a route there-through for said fixed length segment to an output port;

at least one queue within said switching fabric, said queue having an associated threshold, said switching fabric configured to determine the number of fixed length segments present in said queue, said switching fabric configured to determine if the next arriving fixed length segment for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said fixed length segment to a "set" state;

a traffic manager configured to compute a ratio of fixed length segments having said flag bit set to a total number of fixed length segments received at an output port, and

in response to a value of said ratio either discard said fixed length segment or forward said fixed length segment onto an output link of said computer network, said traffic manager configured to select a fixed length segment to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

8. (PREVIOUSLY PRESENTED) The switch as in claim 7 further comprising:

said fixed length segment is an ATM cell and said flag bit is an EFCI bit of said ATM cell.

9. (CURRENTLY AMENDED) A switch for a computer network, the switch to receive data cells from the computer network, comprising:

a switching fabric configured to receive a cell at an input port, said switching fabric configured to select a route there-through for said cell to an output port;

at least one queue within said switching fabric, said queue having an associated threshold, said switching fabric configured to determine the number of cells present in said queue, said switching fabric configured to determine if the next arriving cell for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said cell to a "set" state;

means for computing a ratio of cells having said flag bit set to a total number of cells received at an output port, and in response to a value of said ratio either discarding said cell or forwarding said cell onto an output link of said computer network, said means configured to select a cell to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

10. (CURRENTLY AMENDED) The ~~apparatus~~ switch as in claim 9 wherein said data cells further comprise ATM cells.

11. (CURRENTLY AMENDED) The ~~apparatus~~ switch as in claim 9 wherein said data cells further comprise fixed length data cells.

12. (CURRENTLY AMENDED) The ~~apparatus~~ switch as in claim 9 wherein said data cells further comprise IP cells.

13. (CURRENTLY AMENDED) A method of operating a network switch, said network switch receiving fixed length segments from a computer network, comprising:

receiving a fixed length segment at an input port of a switching fabric, said switching fabric selecting a route through said switching fabric from an input port to an output port of said switching fabric for said fixed length segment;

maintaining at least one queue of fixed length segments within said switching fabric, said queue having an associated threshold,

determining the number of fixed length segments present in said queue, and determining if the next arriving fixed length segment for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then writing a flag bit within said fixed length segment to a "set" state;

computing a ratio of fixed length segments having said flag bit set to a total number of fixed length segments received at an output port, and in response to a value of said ratio either discarding said fixed length segment or forwarding said fixed length segment onto an output link of said computer network, said discarding step selecting a fixed length segment to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

14. (ORIGINAL) The method of claim 13 further comprising:

using as said fixed length segment an ATM cell, and using as said flag bit an EFCI bit of said ATM cell.

15. (ORIGINAL) The method of claim 13 further comprising:

using a Random Early Detection (RED) computational method to select said fixed length segment to be discarded on a random basis.

16. (CURRENTLY AMENDED) A method of operating a network switch, said network switch receiving TCP/IP computer packets from a computer network, comprising:

converting said TCP/IP packets to fixed length packets, said switching fabric selecting a route through said switching fabric from an input port to an output port of said switching fabric for said fixed length segment;

maintaining at least one queue of fixed length segments within said switching fabric, said queue having an associated threshold,

determining the number of fixed length segments present in said queue, and determining if the next arriving fixed length segment for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then writing a flag bit within said fixed length segment to a "set" state;

computing a ratio of fixed length segments having said flag bit set to a total number of fixed length segments received at an output port, and in response to a value of said ratio either discarding said fixed length segment or forwarding said fixed length segment onto an output link of said computer network, said discarding step selecting a fixed length segment to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

17. (ORIGINAL) The method of claim 16 further comprising:

using as said fixed length segment an ATM cell, and using as said flag bit an EFCI bit of said ATM cell.

18. (ORIGINAL) The method of claim 16 further comprising:

using a Random Early Detection (RED) computational method to select said fixed length segment to be discarded on a random basis.

19. (CURRENTLY AMENDED) A computer readable media containing instructions for operating a network switch, said network switch receiving fixed length segments from a computer network, the instructions comprising instructions configured to:

receive a fixed length segment at an input port of a switching fabric, and to select a route through said switching fabric from an input port to an output port of said switching fabric for said fixed length segment;

maintain at least one queue of fixed length segments within said switching fabric, said queue having an associated threshold,

determine the number of fixed length segments present in said queue, and determine if the next arriving fixed length segment for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said fixed length segment to a "set" state;

compute a ratio of fixed length segments having said flag bit set to a total number of fixed length segments received at an output port, and in response to a value of said ratio either discard said fixed length segment or forward said fixed length segment onto an output link of said computer network, said instructions configured to select fixed length segment to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

20. (CURRENTLY AMENDED) Electromagnetic signals propagating on a computer network, said electromagnetic signals carrying information for operating a network switch, said network switch receiving fixed length segments from a computer network, the information comprising instruction configured to:

receive a fixed length segment at an input port of a switching fabric, and to select a route through said switching fabric from an input port to an output port of said switching fabric for said fixed length segment;

maintain at least one queue of fixed length segments within said switching fabric, said queue having an associated threshold,

determine the number of fixed length segments present in said queue, and determine if the next arriving fixed length segment for said at least one queue fills said queue above said threshold, and in the event that said at least one queue is filled above said threshold, then write a flag bit within said fixed length segment to a "set" state;

compute a ratio of fixed length segments having said flag bit set to a total number of fixed length segments received at an output port, and in response to a value of said ratio either discard said fixed length segment or forward said fixed length segment onto an output link of said computer network, said instructions configured to select a fixed length segment to be discarded on a random basis and absent access to the number of cells present in the at least one queue.

21. (CURRENTLY AMENDED) An ATM switch for receiving ATM cells from a computer network, the ATM switch comprising:

a switching fabric configured to receive ~~a~~ cells at an input port, the switching fabric configured to select~~ing~~ a route for the cells to an output port;

a queue within the switching fabric, the queue having an associated threshold, the switching fabric configured to determine the number of cells present in the queue, the switching fabric further configured to determine that the queue is filled above ~~a~~ the

threshold and in response set congestion indicator fields within ~~a~~ newly arrived cells at the switching fabric;

a traffic manager, external to the switching fabric, the traffic manager configured to monitor cells received at the output port and configured to discard cells, in response to a ratio of cells having the congestion indicator field set to a total number of cells; and

wherein the number of cells present in the queue is inaccessible to the traffic manager.

22. (PREVIOUSLY PRESENTED) The switch of claim 21 further comprising:

an ASIC chip having said traffic manager implemented therein.

23. (NEW) The switch of claim 21 wherein the traffic manager is further configured to apply a Randon Early Detection (RED) algorithm to the ratio of cells having the congestion indicator field set to the total number of cells.

24. (NEW) The switch of claim 21 wherein the traffic manager is further configured to calculate a discard probability from the ratio of cells having the congestion indicator field set to the total number of cells.

25. (NEW) The switch of claim 24 wherein the traffic manager is further configured to compare the discard probability to a random number, and in response to the comparison, to determine whether a particular cell should be dropped.

26. (NEW) The switch of claim 24 wherein the traffic manager is further configured to adjust the discard probability in response to a particular cell being of a particular class of traffic.

27. (NEW) The switch of claim 21 wherein the ratio of cells having the congestion indicator field set to the total number of cells is determined for a selected time period.

28. (NEW) A method comprising:

receiving cells at an input port of a switching fabric;

selecting a route for the cells to an output port of the switching fabric, the route passing through a queue;

determining the number of cells present in the queue, and if the queue is filled above a threshold setting a congestion indicator field within newly arrived cells;

monitoring cells received at the output port and deciding that cells should be discarded, in response to a ratio of cells having the congestion indicator field set to a total number of cells; and

wherein the number of cells present in the queue is not accessed in the steps of monitoring and deciding.

29. (NEW) The method of claim 28 wherein the step of deciding further comprises:

applying a Random Early Detection (RED) algorithm to the ratio of cells having the congestion indicator field set to the total number of cells.

30. (NEW) The method of claim 28 wherein the step of deciding further comprises:

calculating a discard probability from the ratio of cells having the congestion indicator field set to the total number of cells.

31. (NEW) The method of claim 30 wherein the step of deciding further comprises:

comparing the discard probability to a random number, and

determining, in response to the comparison, whether a particular cell should be discarded.

32. (NEW) The method of claim 30 wherein the step of deciding further comprises:

adjusting the probability value in response to a particular cell being of a certain class of traffic.

33. (NEW) The method of claim 28 further comprising:

discarding cells by a line card.